UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

OFFICE OF
PREVENTION, PESTICIDES AND
TOXIC SUBSTANCES

December 21, 2004

MEMORANDUM

Subject: Acute Toxicity Review for EPA Reg. No.: 74986-U / Selective Micro Clean Alpha

DP Barcode: D310297

To: Emily Mitchell, PM 32 / Wanda Mitchell
Regulatory Management Branch
Antimicrobials Division (7510C)

From: Ian Blackwell, Biologist
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Through: Karen Hicks, Team Leader
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12/21/04

Applicant: Selective Micro Technologies, LLC

FORMULATION FROM LABEL:

Active Ingredient(s):	% by wt.
Sodium chlorite	30.5
Other Ingredient(s):	69.5
Total:	100%

I BACKGROUND: Selective Technologies, LLC has submitted a set of three acute toxicity / primary irritation studies to support the registration of their product, "Selective Micro Clean Alpha". The studies were conducted by Product Safety Laboratories. The MRID Numbers are 463908-01 through 463908-03.

There three studies are an acute oral toxicity study, an acute dermal toxicity study, and, a primary skin irritation study. These studies received a primary review from the EPA contractor, DynCorp LLC.

A review of 74986-U was previously conducted by CTT/PSB 10/7/2004. That previous review cites MRID Numbers 457782-04 through 457782-07. That request to cite the acute oral toxicity, acute dermal toxicity, and primary skin irritation studies (MRID Numbers 457782-04, 457782-05, and 457782-07) conducted on 74986-1 was denied. The results of that review were:

Study	MRID Number	Toxicity Category	Status
Acute Oral Toxicity	none		Data Gap
Acute Dermal Toxicity	none		Data Gap
Acute Inhalation Toxicity	none		Data Gap
Primary Eye Irritation	457782-06	I	Cited
Primary Skin Irritation	none		Data Gap
Dermal Sensitization	none		Data Gap

A data matrix included in the submission requests the waiver of the acute inhalation toxicity and dermal sensitization studies.

II RECOMMENDATIONS: PSB findings are:

1 The acute oral toxicity, acute dermal toxicity and primary skin irritation studies are acceptable.

2 The request for the waiver of the acute inhalation toxicity study is denied. The submission does not give a rationale for this waiver.

3 The waiver of the dermal sensitization study is granted. That the product is corrosive to skin meets the 40 CFR guidance for the waiver of dermal toxicity studies.

The acute toxicity profile for 74986-U is currently:

The acute toxicity profile for File Symbol 74986-U is currently:			
Study	MRID Number	Toxicity Category	Status
Acute Oral Toxicity	463908-01	III	Acceptable
Acute Dermal Toxicity	463908-02	IV	Acceptable
Acute Inhalation Toxicity	none		Data Gap
Primary Eye Irritation	457782-06	I	Cited
Primary Skin Irritation	463908-03	I	Acceptable
Dermal Sensitization	none	Nonsensitizer	Waived

III LABELING:

No precautionary labeling can be recommended at this time.

DATA REVIEW FOR ACUTE ORAL TOXICITY
UP AND DOWN PROCEDURE TESTING (§ 81-1, 870.1100)

Product Manager: 32
MRID No.: 463908-01

Reviewer: Ian Blackwell
Study Completion Date: Sept. 27, 2004
Report No.: 15452

Testing Laboratory: Product Safety Laboratories
Author: Daniel J. Merkel, B.S.

Quality Assurance (40 CFR §160.12): A Quality Assurance Statement and GLP Compliance statement were included.

Test Material: Selective Micro® Clean-Alpha (mixture of stabilized technical sodium chlorite: Lot# EDDL0101 and [redacted] Lot #L127584 to obtain percent ratios as in market product) / White powder

Dosage: 380, 1,200, and 5,000 mg/kg (administered as 70% w/w in distilled water)

Species: Sprague-Dawley derived, albino rats (7/female); nulliparous and non-pregnant
Weight: 190-213 g (Initial); 130-221 g (Survivors at Day 7); 218-238 g (Survivors at Day 14)
Age: Young adult (10-11 weeks)
Housing: Temperature Range 21-24°C. Relative humidity was not reported.
Acclimation: 13-24 days
Source: Ace Animals, Inc., Boyertown, PA

Conclusion:

1. LD_{50} (mg/kg): 1,200 mg/kg (95 % C.I. 3,990 to 382.4 mg/kg)

2. Tox. Category: III **Classification**: Acceptable

Procedure (Deviations from §81-1): No deviations were noted.
The testing laboratory mixed individual product ingredients (stabilized technical sodium chlorite and [redacted] to obtain percent ingredient ratios indicated in the product.

Inert ingredient information may be entitled to confidential treatment

Results:

Reported Mortality

Dosing Sequence	Animal Number	Dosage (mg/kg)	Survival (S) / Death (D)	
			Short Term	Long Term (14 Days)
1	5353	380	S	S
2	5394	1,200	S	D
3	5395	5,000	D	D
4	5396	1,200	S	S
5	5466	5,000	D	D
6	5468	1,200	S	S
7	5543	5,000	D	D

Observations: The test solution was administered in sequence to the animals as presented in the table above. The decision to proceed with the next animal was based on the survival of the previous animal in the short-term period following dosing.

380 mg/kg Dose Level (1 animal): Animal survived, gained body weight, and appeared active and healthy. There were no signs of gross toxicity, adverse pharmacologic behavior, or abnormal behavior.

1,200 mg/kg Dose Level (3 animals): One female died on Day 8. Prior to death, this animal exhibited irregular respiration, hypoactivity, facial staining, ano-genital staining, and reduced fecal volume. Surviving animals exhibited similar clinical signs as well as piloerection. Survivors recovered by Day 10 and appeared active and healthy for the remainder of the study, gaining body weight over the entire 14-day period.

5,000 mg/kg Dose Level (3 animals) ; All animals died within one day of test substance administration. Toxic signs prior to death included hypoactivity, irregular respiration, and prone posture.

Gross Necropsy Findings: Gross necropsy of decedents revealed discoloration of the lungs and intestines. Blood vessels of the intestines were injected in decedents receiving the 5,000 mg/kg dose level. No gross abnormalities were noted for any of the surviving animals when necropsied at the conclusion of the 14-day observation period.

Statistical Analysis: The *Acute Oral Toxicity (Guideline 425) Statistical Program* (Weststat, version 1.0, May 2001) was used for all data analyses.

DATA REVIEW FOR ACUTE DERMAL TOXICITY TESTING (§81-2, 870.1200)

Product Manager: 32
MRID No.: 463908-02

Reviewer: Ian Blackwell
Study Completion Date: Sept. 27, 2004
Report No.: 15453

Testing Laboratory: Product Safety Laboratories
Author: Daniel J. Merkel, B.S.

Quality Assurance (40 CFR §160.12): A Quality Assurance Statement and statement of GLP compliance were included.

Test Material: Selective Micro® Clean-Alpha (mixture of stabilized technical sodium chlorite: Lot# EDDL0101 and [redacted] Lot #L127584 to obtain percent ratios as in market product) / White powder

Species: 10 Sprague-Dawley derived, albino rats (5/sex); Females were nulliparous and non-pregnant
Weight: Females (185-200 g) Males (241-261 g) **Age**: Young adult
Housing: Temperature Range: 19-24°C; Relative humidity was not reported.
Acclimation: 8 days

Source: Ace Animals, Inc., Boyertown, PA

Summary:

1. **LD_{50} (mg/kg)**: **Males** > 5,000 mg/kg; **Females** > 5,000 mg/kg; **Combined** > 5,000 mg/kg
2. **The estimated LD_{50} is** > 5,000 mg/kg.
3. **Tox. Category**: IV **Classification**: Acceptable

Procedure (Deviation From §81-2): No deviations were noted.
The laboratory mixed individual product ingredients (stabilized technical sodium chlorite and [redacted] to obtain percent ingredient ratios indicated in the product.

Results:

Reported Mortality

DOSAGE (mg/kg)	(DEATHS/Number Tested)		
	Males	Females	Total
(5,319 - 5,789)[1]	0/5	0/5	0/10

[1] Doses were applied ranging from 1,000 to 1,500 grams; corresponding dose levels ranged between 5,319 and 5,789 mg/kg depending on animal body weight.

Observations: All animals survived, gained body weight, and appeared active and healthy. Apart from dermal irritation (erythema and edema) noted at the dose sites of seven animals between Days 1 and 2, there were no other signs of gross toxicity, adverse pharmacologic effects or abnormal behavior.

Gross Necropsy Findings: No gross abnormalities were noted for any of the animals when necropsied at the conclusion of the 14-Day observation period.

DATA REVIEW FOR DERMAL IRRITATION TESTING (§81-5, 870.2500)

Product Manager: 32
MRID No.: 463908-03

Reviewer: Ian Blackwell
Study Completion Date: Sept. 27, 2004
Report No.: 15454

Testing Laboratory: Product Safety Laboratories
Author: Daniel J. Merkel, B.S.

Quality Assurance (40 CFR §160.12): A Quality Assurance Statement and statement of GLP compliance were included.

Test Material: Selective Micro® Clean-Alpha (mixture of stabilized technical sodium chlorite: Lot# EDDL0101 and [redacted] Lot #L127584 to obtain percent ratios as in market product) /
White powder

Dosage: 0.5 g (0.56 g of a 90% test mixture)

Species: 3 New Zealand albino rabbits, Female
Weight: Weight information not provided **Age**: Young adult
Source: Robinson Services, Inc., Clemmons, NC

Summary:

1. **Toxicity Category**: I
2. **Classification**: Acceptable

Procedure (Deviations From §81-4): No deviations were noted.
The testing laboratory mixed individual product ingredients (stabilized technical sodium chlorite and [redacted] to obtain percent ingredient ratios indicated in the product.

Results: All animals appeared active and healthy apart from the dermal irritation noted, there were no other signs of gross toxicity, adverse pharmacologic effects, or abnormal behavior. One hour after patch removal, all three treated sites exhibited moderate to severe erythema and slight to moderate edema. Within 72 hours, corrosion was evident at two dose sites. The primary dermal irritation index was reported as 6.0. Based on the results of this study, Selective Micro® Clean-Alpha is classified as severely irritating.

The product is severely irritating and corrosive to the skin. Corrosive eschar was observed in two of the three animals tested at the end of a 72-hour observation.

Inert ingredient information may be entitled to confidential treatment

Animal Number	Hours After Patch Removal ERYTHEMA / EDEMA			
	1	24	48	72
11994	3/3[1]	3/3[1]	3/3[1]	4/2[2]
11995	4/4[1]	4/3[1]	4/3[1]	4/2[3]
11996	3/2[1]	3/2[1]	3/2[1]	4/2[3]

[1] Light brown discoloration at dose site
[2] Superficial eschar observed
[3] Eschar (corrosive) observed